EOS Production Sites
Network Performance Report: February 2015

This is a monthly summary of EOS network performance testing between production sites – comparing the measured performance against the requirements. Significant improvements are noted in Green, Network problems in Red, System problems and Requirements issues in Gold, Issues in Orange, and other comments in Blue.

Highlights:

- **Very stable flows**
  - **GPA: 3.69** ↑ (was 3.64 last month)
- **Requirements**: using the Network Requirements Database for 2014
  - Including GPM, OCO2, and SMAP missions
  - MODIS and AMSR Reprocessing requirements included
- **Only 2 flows below Good**
  - **GSFC → EROS: Almost Adequate**
  - **NOAA → GSFC-NPP-SD3E: Low**
    - Probably just a problem with the NOAA test node

Ratings Changes:

Upgrade: ↑ **GHRC → NSIDC: Good → Excellent**

Downgrades: ↓ None

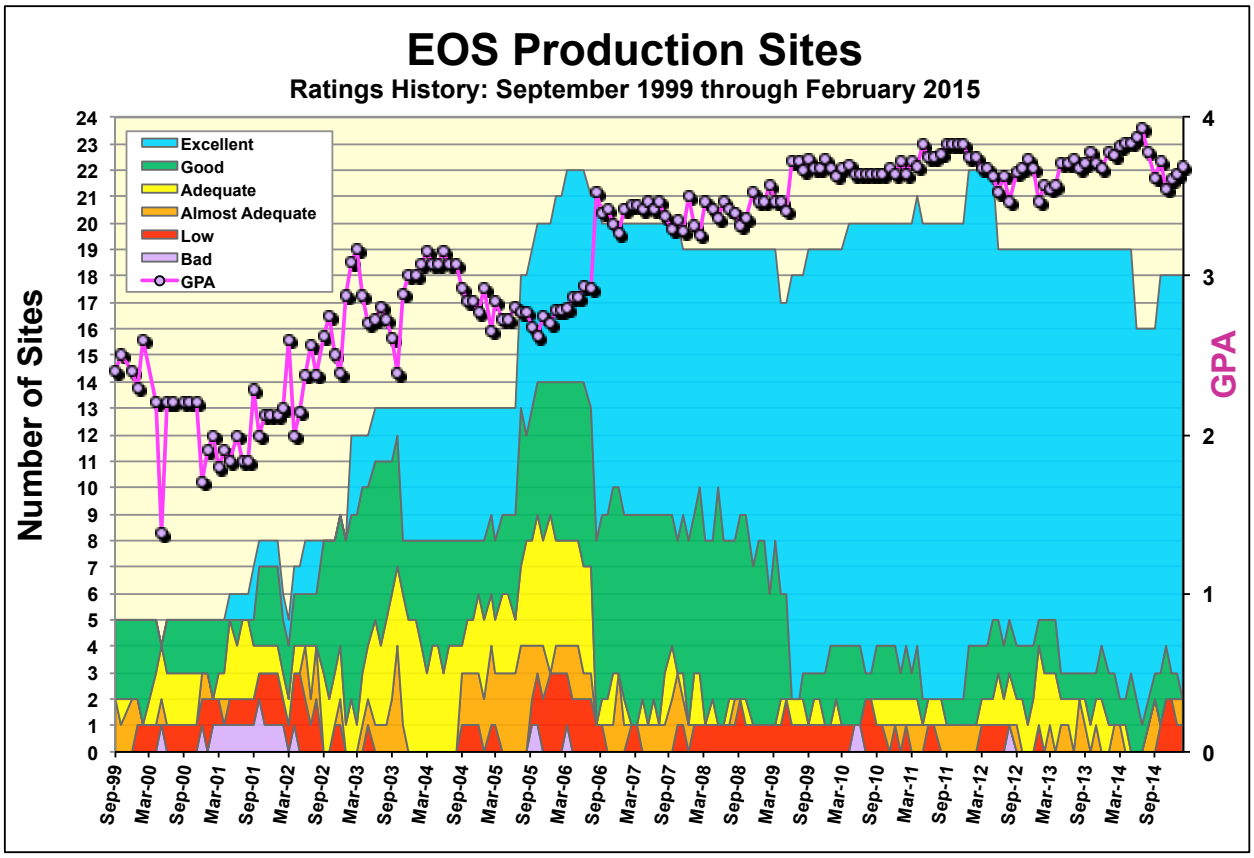
Ratings Categories:

Rating	Value	Criteria
Excellent:	**4**	**Total Kbps** > Requirement * 3
Good:	**3**	1.3 * Requirement <= **Total Kbps** < Requirement * 3
Adequate:	**2**	Requirement < **Total Kbps** < Requirement * 1.3
Almost Adequate:	**1.5**	Requirement / 1.5 < **Total Kbps** < Requirement
Low:	**1**	Requirement / 3 < **Total Kbps** < Requirement / 1.5
Bad:	**0**	**Total Kbps** < Requirement / 3

Where Total Kbps = Average Integrated Kbps (where available), otherwise just iperf

Note that "**Almost Adequate**" implies meeting the requirement excluding the usual 50% contingency factor.

Ratings History:



The chart above shows the number of sites in each rating category since EOS Production Site testing started in September 1999. Note that these ratings do NOT relate to absolute performance – they are relative to the EOS requirements.

Additions and deletions:

2011 April: Added RSS to GHRC
2011 May: Deleted WSC to ASF for ALOS
2012 January: Added NOAA → GSFC-SD3E
Added GSFC-SD3E → Wisconsin
2012 June: Deleted GSFC → LASP
Deleted GSFC ← → JAXA
2014 June: AMSR-E no longer producing data
Deleted JPL to RSS and RSS to GHRC
Deleted JPL to NSIDC
2014 October: Added JPL to NSIDC requirement for SMAP
Added GSFC to GHRC requirement for LANCE

Requirements Basis:

In June 2014, the requirements were updated to the latest values in the database!

- Added flows for GPM, OCO2, and SMAP (effective FY '15) missions
- Removed AMSR-E, ICESAT flows (AMSR-E reprocessing remains includes)
- MODIS reprocessing incorporated month-by-month
    - Reprocessing requirement began 2014 August

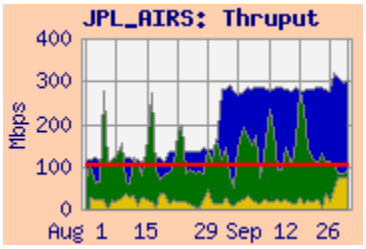
In June 2012, the requirements were switched, to use the EOSDIS network requirements database.

Previously, the requirements were based on the EOS Networks Requirements Handbook, Version 1.4.3 (from which the original database requirements were derived). Prior to that, the requirements were derived from version 1.4.2.

One main difference between Handbooks 1.4.2 and 1.4.3 is that in 1.4.3 most flows which occur less than once per day were averaged over their production period. These flows were typically monthly Level 3 data transfers, which were specified to be sent in just a few hours. However, they could easily be accommodated either between the per-orbit flows, or within the built-in contingency. Previously, these flows were added in linearly to the requirements, making the requirements unrealistically high.

Additionally, the contingency for reprocessing flows greater than 2X reprocessing was reduced. These flows WERE a major component of the contingency, so adding additional contingency on top of these flows was considered excessive.

Integrated Charts:



Integrated charts are included with site details, where available. These charts are "Area" charts, with a "salmon" background. A sample Integrated chart is shown here. The yellow area at the bottom represents the daily average of the user flow from the source facility (e.g., GSFC, in this example) to the destination facility (JPL, in this example) obtained from routers via "netflow".

The green area is stacked on top of the user flow, and represents the "adjusted" daily average iperf thruput between the source-destination pair most closely corresponding to the requirement. This iperf measurement essentially shows the circuit capacity remaining with the user flows active. Adjustments are made to compensate for various systematic effects, and are best considered as an approximation.

The red line is the requirement for the flow from the source to destination facilities. On some charts a blue area is also present – usually "behind" the green area – representing adjusted iperf measurements from a second source node at the same facility.

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Network Requirements vs. Measured Performance

February 2015		Requirements (mbps)		Testing				Ratings	
Source ➔ Destination	Instrument (s)	Current FY '15	Old FY '12	Source ➔ Dest Nodes	Average User Flow mbps	iperf Median mbps	Integrated mbps	Ratings re FY '15 Requirements: This Month	Ratings re FY '15 Requirements: Last Month
GSFC ➔ EROS	MODIS, LandSat	1016.2	548.4	MODAPS-PDR ➔ EROS LPDAAC	282.7	654.1	725.2	A A	A A
GSFC ➔ JPL	AIRS, MLS, NPP, TES, OCO2, SMAP	121	63.0	NPP SD3E OPS1 ➔ JPL-AIRS	76.3	777.4	782.1	Excellent	Ex
JPL ➔ GSFC	MLS, OCO2	11.9	0.57	JPL-PODAAC ➔ GSFC GES DISC	13.4	440.5	440.5	Excellent	Ex
LaRC ➔ JPL	TES, MISR	83.5	83.5	LARC-ANGe ➔ JPL-TES	14.3	267.1		Excellent	Ex
JPL ➔ LaRC	TES	1.1	1.1	JPL-TES ➔ LARC-PTH	1.26	773.4	773.4	Excellent	Ex
GSFC ➔ LaRC	CERES, MISR, MOPITT, TES, MODIS	60.7	52.2	GSFC EDOS ➔ LaRC ASDC	36.8	904.5	907.7	Excellent	Ex
LaRC ➔ GSFC	MISR	0.6	0.6	LARC-ASDC ➔ GES DISC	0.64	933.4	933.4	Excellent	Ex
JPL ➔ NSIDC	AMSR-E, SMAP	17.1	0.16	JPL-SMAP ➔ NSIDC	0.93	709.5		Excellent	Ex
NSIDC ➔ GSFC	AMSR-E, MODIS, ICESAT	0.009	0.017	NSIDC DAAC ➔ GES DISC	5.62	615.7	615.7	Excellent	Ex
GSFC ➔ NSIDC	AMSR-E, MODIS, ICESAT, GBAD	38.5	8.4	MODAPS PDR ➔ NSIDC-DAAC	85.1	313.2	327.7	Excellent	Ex
GHRC ➔ NSIDC	AMSR-E	5.14	2.08	GHRC ➔ NSIDC DAAC	0.023	20.46	20.46	Excellent	Good
GSFC ➔ GHRC	AMSR-E, MODIS	2.9	0.00	GSFC EDOS ➔ GHRC via NISN	10.2	245.3	245.3	Excellent	Ex
NOAA ➔ GSFC	NPP	601.3	522.3	NOAA-PTH ➔ GSFC NPP-SD3E OPS1	215.9	221.3	274.3	Low	Low
GSFC ➔ Wisc	NPP, MODIS, CERES, AIRS	264.2	259.1	GSFC NPP-SD3E OPS1 ➔ WISC	116.0	1195.3	1215.2	Excellent	Ex
LaRC ➔ NCAR	MOPITT	0.044	0.044	LaRC-PTH ➔ NCAR		181.1		Excellent	Ex
GSFC ➔ JAXA	TRMM, AMSR-E, MODIS, GPM	15.4	3.5	GSFC-EBnet ➔ JAXA	12.3	n/a		n/a	n/a
JAXA ➔ GSFC	AMSR-E, GPM	3.3	0.16	JAXA ➔ GSFC-EBnet	2.6	n/a		n/a	n/a
GSFC ➔ JSpace	ASTER	16.4	6.8	GSFC-EDOS ➔ JSpace-ERSD	4.56	506.1	506.1	Excellent	Ex
JSpace ➔ EROS	ASTER	8.3	8.3	JSpace-ERSD ➔ EROS PTH	5.2	325.4	325.4	Excellent	Ex
GSFC ➔ KNMI	OMI	13.4	13.4	GSFC-OMISIPS ➔ KNMI ODPS	1.75	50.0	51.0	Excellent	Ex

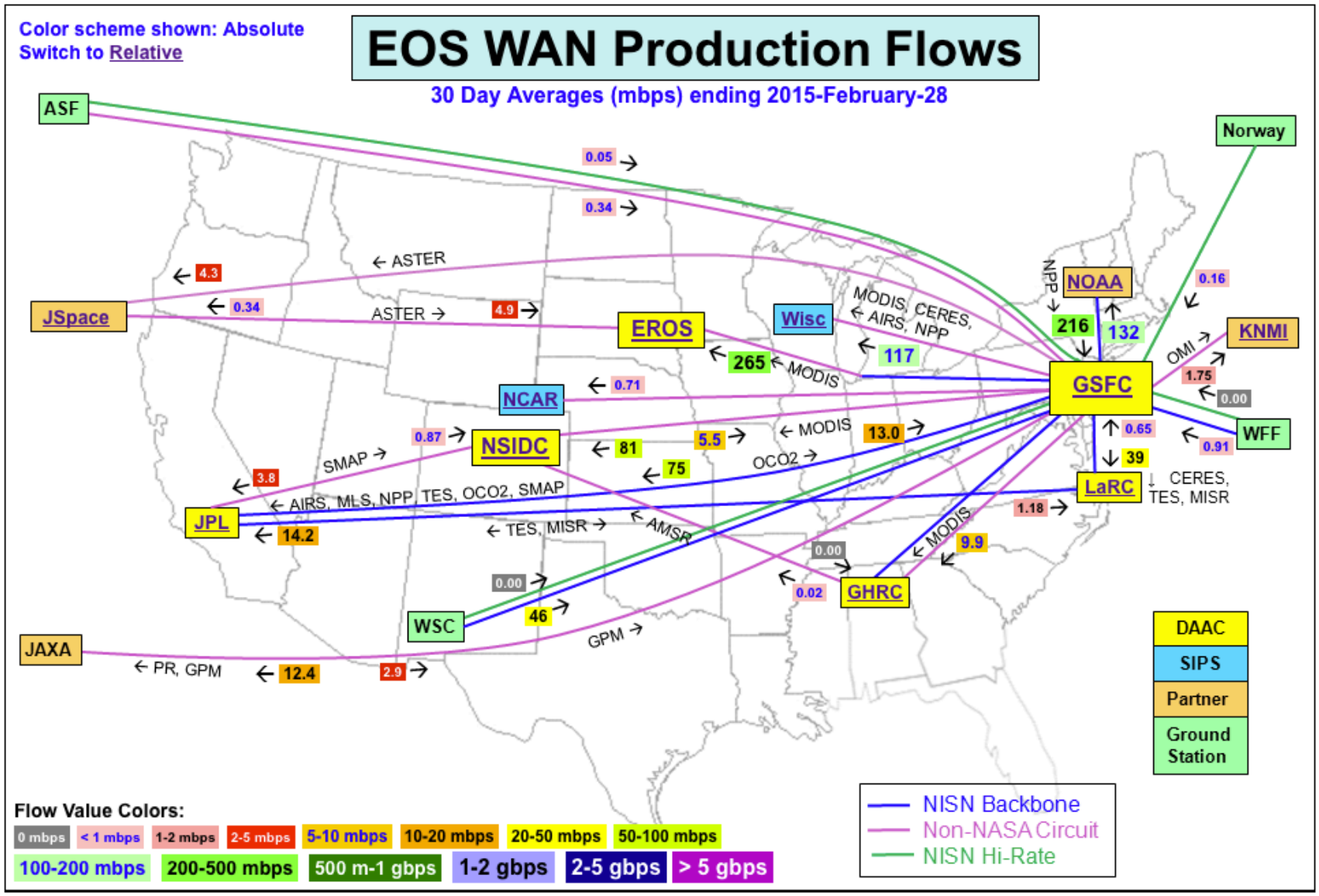
Significant change from FY '12 to FY '14

Changed in 2014 | Value used for ratings

*Criteria:		
	Excellent	**Total Kbps** > Requirement * 3
	Good	1.3 * Requirement <= **Total Kbps** < Requirement * 3
	Adequate	Requirement < **Total Kbps** < Requirement * 1.3
	Almost Adequate	Requirement / 1.5 < **Total Kbps** < Requirement
	Low	Requirement / 3 < **Total Kbps** < Requirement / 1.5
	Bad	**Total Kbps** < Requirement / 3

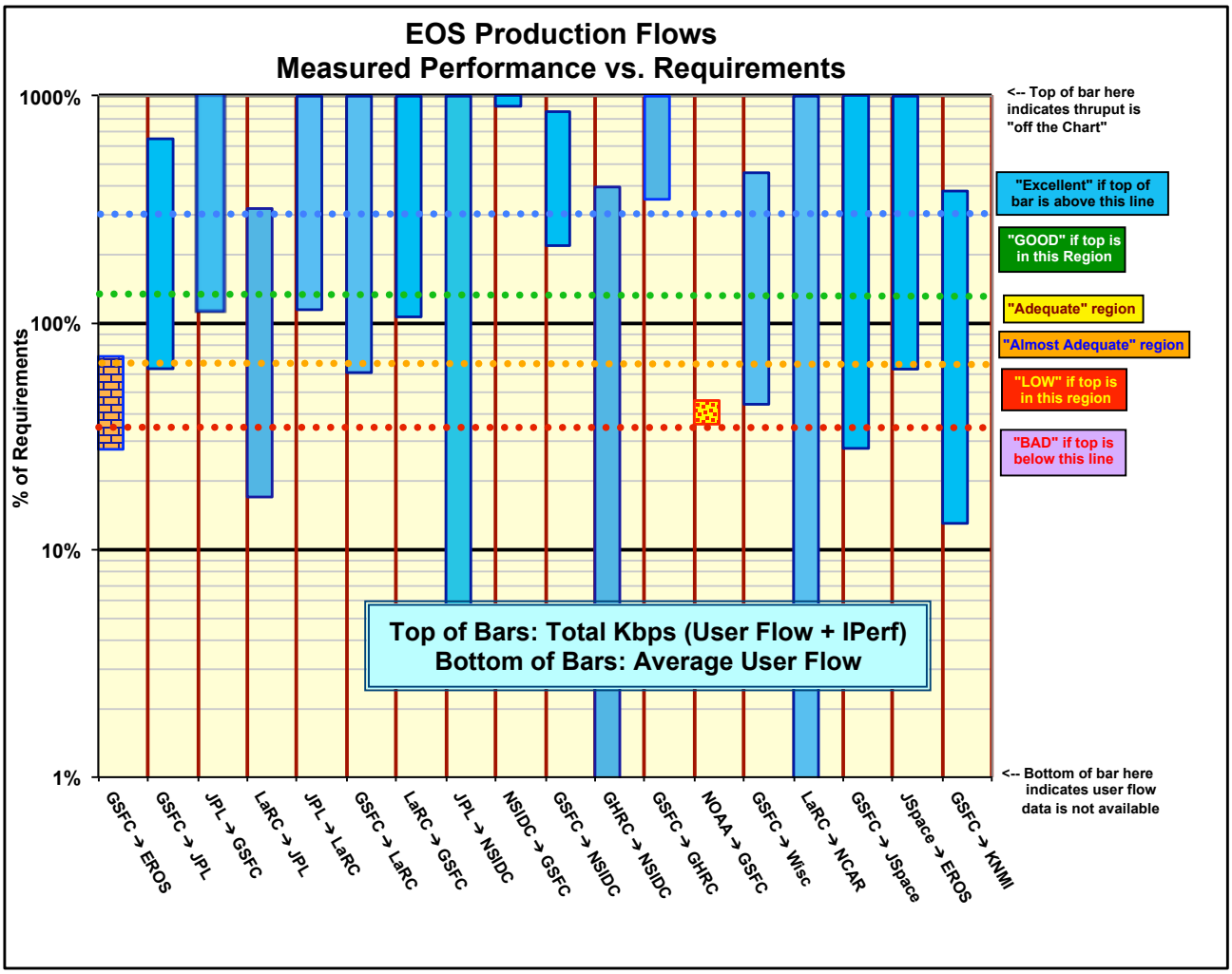
Ratings Summary	FY '15 Req Score	FY '15 Req Prev
Excellent	16	15
Good	0	1
Adequate	0	0
Almost Adequate	1	1
Low	1	1
Bad	0	0
Total Sites	18	18
GPA	3.69	3.64

Notes: Flow Requirements include:
TRMM, Terra, Aqua, Aura, ICESAT, QuikScat, GEOS, NPP, GPM, SMAP, OCO2



This chart shows the averages for the main EOS production flows for the current month. **Closed side flows were again not available this month.** Up to date flow information can be found at http://ensight.eos.nasa.gov/Weather/web/hourly/Production_Flows-A.shtml

This graph shows a bar for each source-destination pair – relating the measurements to the requirements for that pair. The bottom of each bar represents the average measured user flow from the source site to the destination site (as a percent of the requirement) – it indicates the relationship between the requirements and actual flows. Note that the requirements generally include a 50% contingency factor above what was specified by the projects, so a value of 67% (dotted orange line) would indicate that the project is flowing as much data as requested. The top of each bar similarly represents the integrated measurement, combining the user flow with Iperf measurements – this value (when available) is used to determine the ratings.



1) EROS:

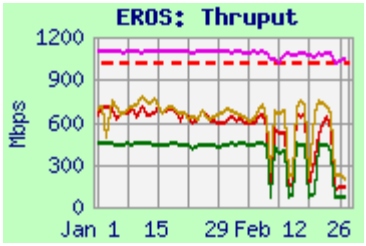
Ratings: GSFC → EROS: Continued **Almost Adequate**
JSpace → EROS: Continued **Excellent**

1.1 GSFC → EROS:

Web Pages: http://ensight.eos.nasa.gov/Organizations/production/EROS.shtml
http://ensight.eos.nasa.gov/Organizations/production/EROS_PTH.shtml

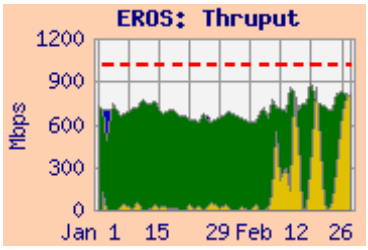
Test Results:

Source → Dest	Medians of daily tests (mbps)				
	Best	Median	Worst	User Flow	Integrated
MODAPS-PDR→ EROS LPDAAC	747.6	654.1	204.4	282.7	725.2
GSFC-EDOS → EROS LPDAAC	453.2	437.7	66.0		
GES DISC → EROS LPDAAC	757.2	554.1	123.1		
GSFC-ENPL → EROS LPDAAC	1108.5	1082.3	808.5		
GSFC-ENPL → EROS PTH	2123.8	2051.2	1099.2		
GSFC-ENPL → EROS PTH (IPv6)	n/a	n/a	n/a		
GSFC-NISN → EROS PTH	805.8	287.0	36.5		
ESDIS-PS → EROS PTH	849.2	671.9	35.7		



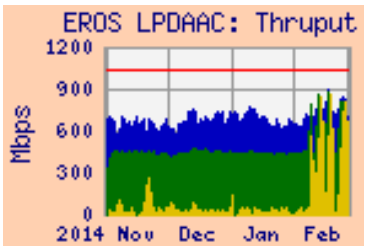
Requirements:

Source → Dest	Date	Mbps	prev	Rating
GSFC → EROS	8/14	1016.1	49.8	Almost Adq



Comments: The rating is based on the MODAPS-PDR Server to EROS LP DAAC measurement, since that is the primary flow.

The reprocessing flow requirement began in August, so the requirement increased to 1016.1 mbps (was only 49.8 mbps previously). **Note from the integrated graph that the reprocessing flow actually began this month** -- the peaks were close to 90% of the requirement (including reprocessing). The user flow this month averaged 283 mbps – much higher than the 24 mbps in recent months.



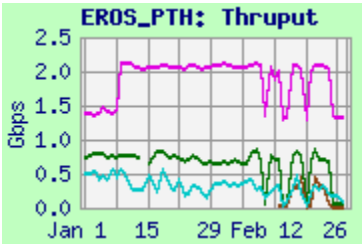
The integrated thruput from all sources was stable this month, while the iperf tests were lower during peak MODIS flows. The median integrated thruput from MODAPS-PDR to LPDAAC increased slightly, and remained above 2/3 of the new requirement (which includes reprocessing), so the rating remains **Almost Adequate**

The median thruput from **GSFC-EDOS** and **GES DISC** (also on EBnet) was similar to MODAPS.

The route from EBnet sources is via the Doors, to the NISN 10 gbps backbone, to the NISN Chicago CIEF, then via a NISN GigE, peering at the StarLight Gigapop with the EROS OC-48 (2.5 gbps) tail circuit.

Iperf testing for comparison is performed from **GSFC-ENPL** to LPDAAC (the "FTL" node, a 10 gig host outside the EROS firewall). The route is via a direct 10 gig connection to the MAX, to the Internet2 100 gbps backbone, to StarLight in Chicago, then via the EROS OC-48 tail circuit. **Thruput from GSFC-ENPL to LPDAAC is much steadier than from EBnet sources, and is not much affected by the MODAPS reprocessing flow.** This leads to the inference that the MODIS flow is congesting NISN's connection to StarLight.

1) EROS: (continued)



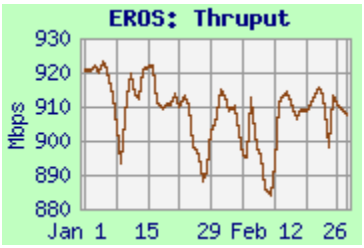
Iperf testing is also performed from **GSFC-ENPL** and **ESDIS-PS** to the EROS-PTH (10 gig test host). **GSFC-ENPL** (IPv4) to EROS-PTH now typically gets over 2 gbps -- but this is affected by the MODIS reprocessing. This shows that the capacity of this network is well in excess of the requirement (including reprocessing) – it would be rated **Good**. EROS has not been configured for IPv6 since February 2014.

Additional Test Results:

Source → Dest	Medians of daily tests (mbps)				
	Best	**Median**	**Worst**	**User Flow**	**Integrated**
Space-ERSD → EROS PTH	330.4	325.4	298.8	5.23	325.4
NSIDC SIDADS→ EROS PTH	915.6	909.0	871.1		
LaRC PTH→ EROS PTH	186.8	186.1	17.3		

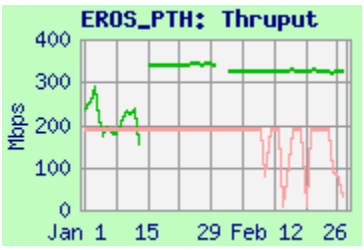
Requirements:

Source → Dest	Date	mbps	prev	Rating
ERSDAC → EROS	FY '06 –	8.3	8.3	**Excellent**



1.2 JSpace-ERSD → EROS: **Excellent**. See section 9 (ERSD) for further discussion.

1.3 NSIDC → EROS-PTH: Performance was stable and excellent this month.



1.4 LaRC → EROS-PTH: The route from LaRC-PTH is via NISN SIP to the Chicago CIEF to StarLight – similar to EBnet sources. Performance was affected by the large MODIS reprocessing flows, similarly to the other NISN sources. Note that LaRC-PTH has a 200 mbps outflow limitation.

2) to GSFC
2.1) to NPP, GES DISC, etc.

Ratings: JPL → GSFC: Continued **Excellent**
NSIDC → GES DISC: Continued **Excellent**
LDAAC → GES DISC: Continued **Excellent**
NOAA → NPP SD3E: Continued **Low**

Web Pages:

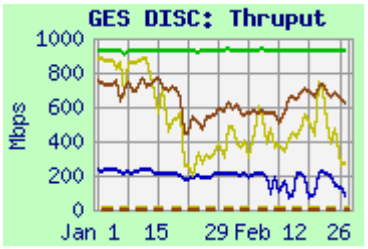
http://ensight.eos.nasa.gov/Missions/NPP/GSFC_SD3E.shtml
http://ensight.eos.nasa.gov/Organizations/production/GDAAC.shtml
http://ensight.eos.nasa.gov/Organizations/production/ESDIS_PTH.shtml
http://ensight.eos.nasa.gov/Missions/icesat/GSFC_ISIPS.shtml

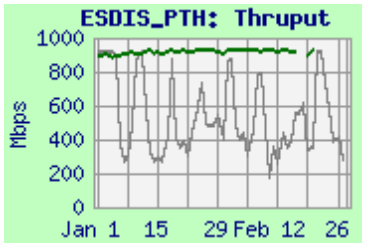
Test Results:

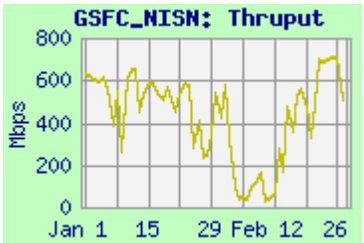
Source → Dest	Medians of daily tests (mbps)				
	Best	Median	Worst	User Flow	Integrated
EROS LPDAAC → GES DISC	239.2	191.9	63.2		
EROS PTH → GSFC-ESDIS PTH	920.0	435.3	167.5		
JPL-PODAAC → GES DISC	697.4	440.5	143.3	13.4	
JPL-PTH → GSFC-NISN	686.0	345.1	37.1		
NSIDC DAAC → GES DISC	741.7	615.7	493.9	5.6	
NSIDC DAAC → GSFC-ISIPS (scp)	31.3	30.0	22.0		
LaRC ASDC → GES DISC	936.1	933.4	911.0	0.64	
LARC-ANGe → GSFC-ESDIS PTH	933.5	925.8	901.2		
NOAA-PTH → NPP-SD3E-OPS1	229.1	221.3	212.5	215.9	274.3

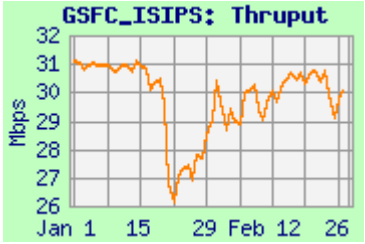
Requirements:

Source → Dest	Date	FY '15	FY '12	Rating
JPL→ GSFC combined	FY '15 –	11.9	0.57	Excellent
NSIDC → GSFC	FY '15 –	0.009	0.017	Excellent
LaRC ASDC → GES DISC	CY '12 –	0.6	0.6	Excellent
NOAA → NPP SD3E	FY '15 –	601.3	522.3	Low









Comments:

2.1.1 EROS LPDAAC, EROS-PTH → GSFC: The thruput for tests from **EROS LPDAAC** to GES DISC and from **EROS-PTH** to ESDIS-PTH were again noisy, with the PTH's getting better results than the DAACs.

2.1.2 JPL → GSFC: Thruput from **JPL-PODAAC** to GES DISC remains noisy. Note that JPL campus nodes → EBnet flows take Internet2 instead of NISN, based on JPL routing policies. Thruput was well above 3 x the requirement, so the rating remains **Excellent**. The 13.4 mbps average user flow was above the requirement and the 10.6 mbps last month.

Testing from **JPL-PTH** to GSFC-NISN is routed via NISN PIP, and is also noisy.

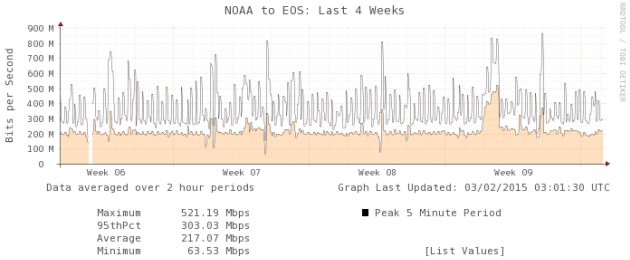
2.1.3 NSIDC → GSFC: Performance from **NSIDC** to GES DISC remained way above the tiny requirement, so the rating remains **Excellent.** The user flow was again well above both the old and lower new requirement.

Thruput to **GSFC-ISIPS** using SCP remains well above the requirement.

2.1) to NPP, GES DISC continued.

2.1.4 LaRC → GSFC: Performance from both **LaRC ASDC** to GES DISC and **LaRC ANGe** to ESDIS-PTH was very stable this month. Both results remained way above 3 x the modest requirement, so the rating continues as **Excellent**. The user flow this month was very close to the requirement.

2.1.5 NOAA → NPP-SD3E: Performance from **NOAA-PTH** to GSFC NPP-SD3E-OPS1 dropped dramatically in early November. The user flow was close to usual, at about 40% of the requirement (with contingency), and appeared unaffected, leading to the inference that the problem was with the test node, not the network.

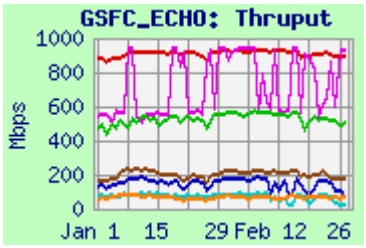


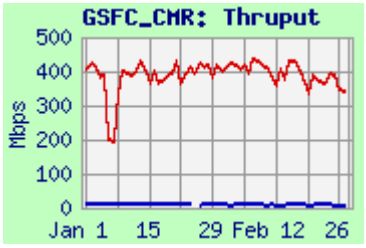
2.2 GSFC-ECHO: EOS Metadata Clearinghouse

Web Page: http://ensight.eos.nasa.gov/Organizations/gsfc/GSFC_ECHO.shtml

Test Results:

Source	Medians of daily tests (mbps)		
	Best	**Median**	**Worst**
EROS LPDAAC	191.7	153.7	62.2
EROS LPDAAC ftp	110.1	73.0	16.5
GES DISC	937.8	921.1	848.6
GES DISC ftp	941.2	879.5	524.7
LaRC ASDC DAAC	576.6	546.2	454.9
NSIDC DAAC	239.8	211.6	155.0
NSIDC DAAC ftp	108.4	71.4	31.6
EROS LPDAAC → CMR	9.9	9.3	8.3
GES DISC → CMR	433.7	394.2	343.8





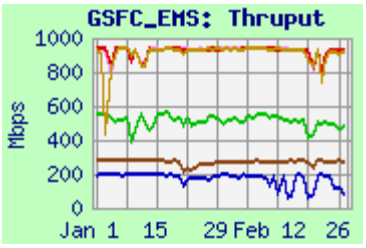
Comments: Performance was mostly stable from all sources. FTP performance is mostly limited by TCP window size – especially from sites with long RTT. Testing to the "Common Metadata Repository" (CMR), which will replace ECHO, was started in November. Performance is erratic – a new server software has been requested.

2.3 GSFC-EMS: EOS Metrics System

Web Page: http://ensight.eos.nasa.gov/Organizations/gsfc/GSFC_EMS.shtml

Test Results:

Source	Medians of daily tests (mbps)		
	Best	**Median**	**Worst**
EROS LPDAAC	206.5	182.6	57.2
ESDIS-PTH	938.2	935.5	850.0
GES DISC	937.6	933.8	763.6
LARC ASDC	574.8	512.4	382.3
MODAPS-PDR	937.4	930.4	703.4
NSIDC-SIDADS	284.8	275.0	198.0



Comments: Iperf testing is performed to GSFC-EMS from the above nodes. Performance was mostly stable from all sources.

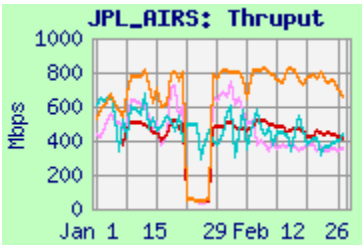
3) JPL:

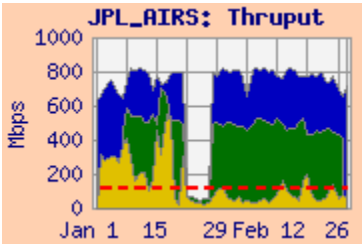
3.1) GSFC → JPL:

Ratings: GSFC → JPL: Continued **Excellent**

Test Results: (additional results on next 2 pages)

Source → Dest	Medians of daily tests (mbps)				
	Best	**Median**	**Worst**	**User Flow**	**Integrated**
NPP-SD3E-OPS1 → JPL-AIRS	856.8	777.4	368.7	76.3	782.1
GSFC-GES DISC → JPL-AIRS	516.8	464.2	373.2		
ESDIS-PTH → JPL-AIRS	434.0	373.2	280.6		
GSFC-NISN → JPL-AIRS	694.9	430.2	52.7		
NPP-SD3E-OPS1 → JPL-Sounder	853.6	791.1	561.7		
GSFC-NISN → JPL-Sounder	691.6	520.7	393.9		





Requirements:

Source → Dest	Date	Mbps	Prev	Rating
GSFC → JPL Combined	FY '15	**121.0**	**63**	**Excellent**
GSFC → JPL AIRS	FY '15	11.4	40	**Excellent**
GSFC NPP → JPL Sounder	FY '15	15.9	15	**Excellent**

Comments: **3.1.1 Overall GSFC to JPL:**

On January 22, routing from EBnet to JPL switched from using NISN PIP to going via MAX to Internet2, to CalREN and Los Nettos. The change occurred due to MAX starting to advertise the JPL routes to Doors (per a request from the SEN), which was then preferred, since MAX is a 10 gig connection, and the NISN connection is only 1 gig. While intended to improve thruput, the change had the opposite effect on most flows! So on January 27, the Doors implemented a local preference to restore the use of NISN – and performance returned to its previous level.

Performance from GSFC to all JPL destinations improved, stabilized, and the diurnal variation was eliminated in early December, due to moving NASA Ames to JPL flows off NISN, and onto CENIC, thus reducing congestion on the 1 gbps connection between NISN PIP and the JPL campus.

Overall user flow decreased this month – the 76 mbps average flow (for all EBnet to JPL flows) is close to the requirement, without contingency, and below the 206 mbps peak last month.

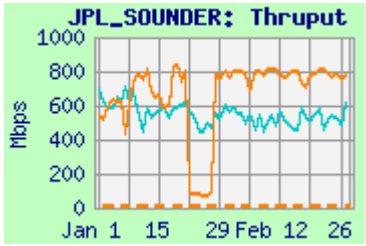
The overall rating is based on the **NPP-SD3E-OPS1** to JPL AIRS thruput, compared with the sum of all the GSFC to JPL requirements. The median thruput remained well above 3 x this requirement, so the overall rating remains **Excellent**.

3.1.2 AIRS: http://ensight.eos.nasa.gov/Missions/aqua/JPL_AIRS.shtml

The median integrated thruput from **NPP-SD3E-OPS1** to JPL-AIRS remains well above 3 x the AIRS requirement, so the AIRS rating remains **Excellent**. Performance from **ESDIS-PTH** and **GES DISC** was similar. Note that **GSFC-NISN** does not connect through the Doors, and continued to use NISN PIP throughout this period, and its performance was unaffected.

3.1.3 NPP to JPL Sounder: http://ensight.eos.nasa.gov/Missions/NPP/JPL_SOUNDER.shtml

Performance from **NPP-SD3E-OPS1** was stable, except for the Jan 22-29 route change, along with the other GSFC to JPL flows. Thruput was well above the requirement, rating **Excellent**. The route from **GSFC-NISN** remained on the NISN PIP network, and performance was unaffected.



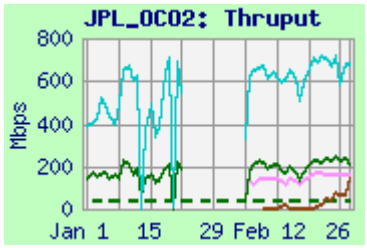
3.1) GSFC → JPL: continued

Test Results: continued

Source → Dest		Medians of daily tests (mbps) Best	Median	Worst	Requirement (mbps)	Rating
GSFC-EDOS B13 → JPL-OCO2	1 stream	250.3	208.7	48.3	36.6	Excellent
	6 streams	755.2	651.1	325.8		Excellent
GSFC-EDOS B32 → JPL-OCO2		169.7	4.7	1.0		
ESDIS-PTH → JPL-OCO2		168.5	144.3	30.5		
GSFC-EDOS B13 → JPL-SMAP	1 stream	379.6	50.9	1.1	49	↑ Adequate
	6 streams	91.0	10.5	7.2		
GSFC-EDOS B32 → JPL-SMAP		309.6	207.4	4.6		
ESDIS-PTH → JPL-SMAP		386.5	315.5	38.5		

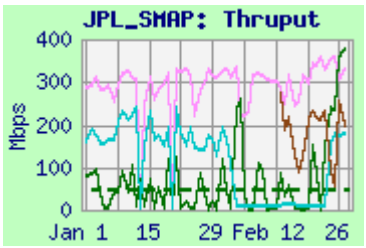
Testing from EDOS to both OCO2 and SMAP was added this month from an EDOS node in B32 – previous testing from EDOS was from B13. Initial results were very strange …testing to OCO2 from B32 was erratic, and much worse than from B13 (which was stable), while results to SMAP were opposite – thruput from B32 was stable and better than the erratic performance from B13! The problem was cleared up late in February when a bad ethernet was removed from an etherchannel at JPL.

3.1.4 OCO2: http://ensight.eos.nasa.gov/Organizations/daac/JPL_OCO2.shtml



Testing from **EDOS-B13** to OCO2 is done using both a **single stream** and **6 streams**. Performance was stable since early December. The OCO2 test node was unavailable for testing from late January until early February. Median thruput from EDOS (using both single stream and 6 streams) is well above 3 x the requirement, so is rated **Excellent**. Testing was added in February from ESDIS-PTH, which was stable and similar to **EDOS-B13,** and from **EDOS-B32,** initially with erratic and poor performance until the JPL ethernet fix, above, was implemented.

3.1.5 SMAP: http://ensight.eos.nasa.gov/Organizations/daac/JPL_SMAP.shtml



The 49 mbps requirement from GSFC to JPL SMAP began in October, before the **SMAP launch on January 31**. Performance from **EDOS-B13 single stream** was erratic – sometimes thruput was good (300 mbps range), but frequently was less that 10 mbps, until the JPL ethernet fix, above, was implemented. For the full month, the median **single stream** thruput was slightly above the requirement, improving the rating to **Adequate**

6 stream testing from **EDOS-B13** was uniformly bad, with high packet loss.

Testing was added in February from **EDOS-B32,** and in December from ESDIS-PTH, with stable performance at a higher average level that from EDOS-B13.

After the ethernet fix, the performance would be rated **Excellent**, both **single stream** and **6 streams/**

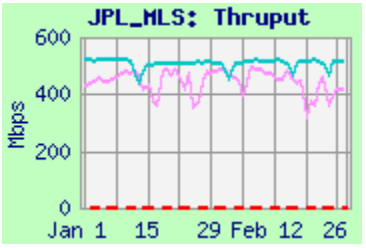
3.1) GSFC → JPL: continued

Test Results: continued

Source → Dest	Medians of daily tests (mbps)		
	Best	**Median**	**Worst**
ESDIS-PTH → JPL-MLS	497.3	448.6	338.2
GSFC-NISN → JPL-MLS	529.9	514.5	468.5
ESDIS-PTH → JPL-PODAAC	567.3	544.4	336.7
GSFC-NISN → JPL- PODAAC	785.0	780.7	593.3
ESDIS-PS → JPL-QSCAT	92.5	92.0	85.7
GSFC-NISN → JPL-QSCAT	74.5	74.0	70.6
ESDIS-PTH → JPL-NISN-PTH	217.8	122.4	33.3

3.1.6 MLS:

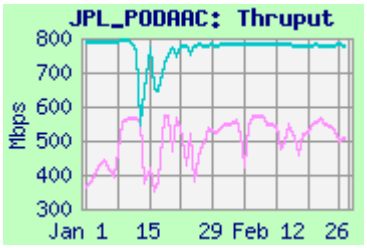
http://ensight.eos.nasa.gov/Missions/aura/JPL_MLS.shtml



Thruput from both ESDIS-PTH and GSFC-NISN stabilized in early December, and was way above the modest 1.2 mbps requirement, so the rating remains **Excellent**.

3.1.7 PODAAC:

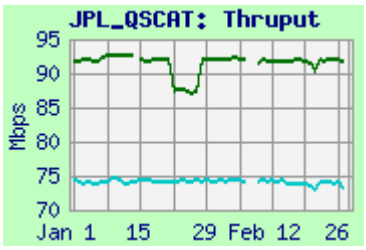
http://ensight.eos.nasa.gov/Organizations/production/JPL_PODAAC.shtml



There is no longer a requirement from GSFC to JPL PODAAC in the database. Performance stabilized in early December, and was not affected by the route change Jan 22-29. Thruput was way above the previous 1.5 mbps PODAAC requirement.

3.1.8 QSCAT:

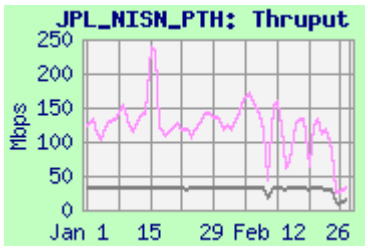
http://ensight.eos.nasa.gov/Organizations/daac/JPL_QSCAT.shtml



There is no longer a requirement from GSFC to JPL QSCAT in the database. Thruput from **ESDIS-PS** and GSFC-NISN to QSCAT also stabilized in early December. Thruput from both sources remained well above the modest previous 0.6 mbps requirement.

3.1.9 ESDIS-PTH to JPL-NISN-PTH:

http://ensight.eos.nasa.gov/Organizations/daac/JPL_NISN_PTH.shtml



The thruput from ESDIS-PTH to JPL-NISN-PTH was stable, and used NISN PIP throughout January, so was not subject to the performance degradation, above.

3.2) LaRC → JPL

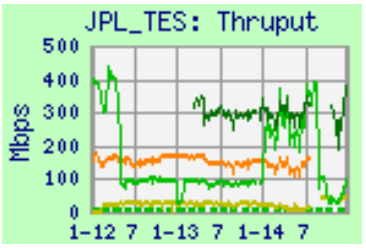
Rating: Continued **Excellent**

Web Pages:

http://ensight.eos.nasa.gov/Organizations/production/JPL_TES.shtml
http://ensight.eos.nasa.gov/Missions/terra/JPL_MISR.shtml
http://ensight.eos.nasa.gov/Organizations/production/JPL_PTH.shtml

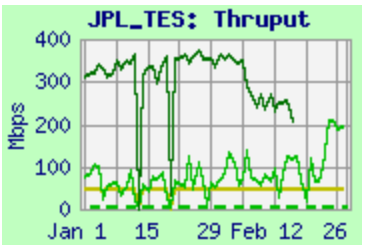
Test Results:

Source → Dest	Medians of daily tests (mbps)			
	Best	Median	Worst	User Flow
LaRC ANGE → JPL-TES	388.1	267.1	84.5	
LaRC ASDC → JPL-TES	208.6	89.9	3.5	
LaRC ANGE → JPL-PTH	279.4	239.8	18.1	14.3
LaRC PTH → JPL-PTH	181.8	181.3	118.3	

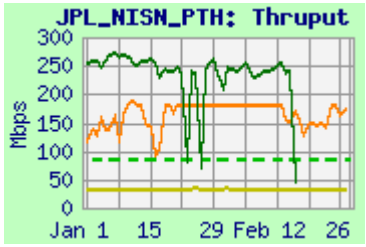


Requirements:

Source → Dest	Date	Mbps	Prev	Rating
LaRC → JPL-Combined	CY '12 –	83.5	69.3	Excellent
LaRC ASDC → JPL-TES	CY '12 –	5.5	7.0	Excellent



3.2.1 LaRC→ JPL (Overall, TES): Performance from **LaRC ASDC** to JPL-TES recovered in late February (and was retuned with further improvement in March), with the JPL Ethernet fix. Performance had dropped dramatically in mid August 2014, when the JPL Ethernet problem apparently began (See section 3.1.4 above). **LaRC ASDC** to JPL-TES had improved dramatically in early January 2014 with the ASDC node upgrade!

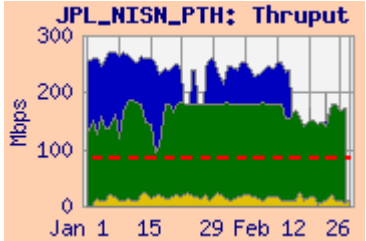


Performance from LaRC to all JPL campus destinations improved, stabilized, and the diurnal variation was eliminated in early December 2014, due to moving NASA Ames to JPL flows off NISN, and onto CENIC, thus reducing congestion on the 1 gbps connection between NISN PIP and the JPL campus.

The LaRC to JPL Overall rating is now based on the results from **LaRC ANGe** to JPL-TES. However, the **LaRC ANGe** test node went down in mid February. The median thruput remained more than 3 x the combined requirements, so the overall rating remains **Excellent**. Total LaRC to JPL user flow is about 26% of the requirement (without contingency).

The median thruput from **LaRC ASDC** to JPL-TES remained well over 3 x the TES requirement, so the TES rating remains **Excellent**. User flow to TES is very low.

3.2.2 LaRC→ JPL-NISN-PTH: Performance from **LaRC ANGe** to JPL-NISN-PTH was much more stable than **LaRC ASDC** to JPL-TES – degradation had previously been present, but less severe than to nodes inside the JPL campus. JPL-NISN-PTH is directly connected to the NISN router, so it was not affected by the congestion between NISN and the JPL campus (or the JPL ethernet problem). Performance from **LaRC-PTH** stabilized a bit below its 200 mbps limitation.



3.2) LaRC → JPL (continued)

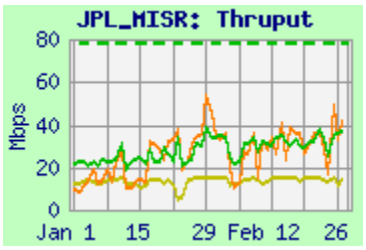
3.2.3 LaRC → JPL-MISR: http://ensight.eos.nasa.gov/Missions/terra/JPL_MISR.shtml

Test Results:

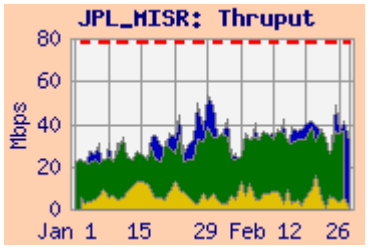
Source → Dest	Medians of daily tests (mbps)			
	Best	Median	Worst	User Flow
LaRC ASDC → JPL-MISR	49.5	31.7	3.7	
LaRC PTH → JPL-MISR	74.5	31.7	2.1	6.8
JPL-NISN-PTH → JPL-MISR	15.7	14.7	0.4	

Requirements:

Source → Dest	Date	Mbps	Prev	Rating
LaRC ASDC → JPL-MISR	CY '12 –	78.1	62.3	Low



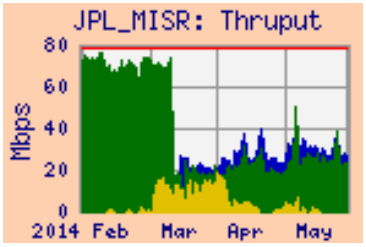
Performance from **LaRC ASDC** to JPL-MISR is similar to that from **LaRC PTH,** limited by the Fast-E connection to the MISR node. Thruput to MISR from both sources dropped severely in March 2014, after improving in December 2013.

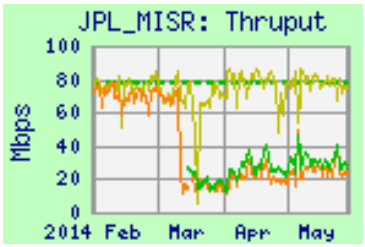


The median integrated thruput from **LaRC ASDC** improved to a bit above 1/3 the MISR requirement, so the MISR rating improves to **Low**. User flow was about the same as last month, and averaged only about 9% of the requirement, without contingency.

Note that there was a user flow peak, beginning in late February 2014, BEFORE the measured thruput dropped in March, suggesting that the user flow is not the cause of the thruput drop.

Performance to JPL-MISR is even poor from **JPL-NISN-PTH**, suggesting that the problem is unique to MISR, and not a WAN issue. So the LaRC → JPL Overall rating is not based on this result, however, since it not indicative of the capability of the network.





4) LaRC

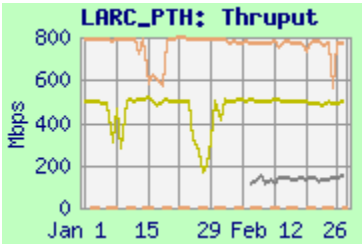
4.1) JPL → LaRC

Rating: Continued **Excellent**

Web Page: http://ensight.eos.nasa.gov/Organizations/production/LARC_PTH.shtml

Test Results:

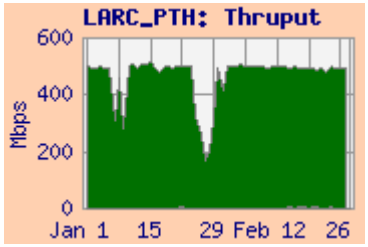
Source → Dest	Medians of daily tests (mbps)			
	Best	Median	Worst	User Flow
JPL-NISN-PTH → LaRC PTH	507.8	499.4	135.4	1.26
JPL-TES → LaRC PTH	793.0	773.4	187.3	
JPL-PS → LaRC PTH	224.5	137.3	74.8	



Requirements:

Source → Dest	Date	Mbps	Prev	Rating
JPL → LaRC	CY '12 –	1.1	1.5	**Excellent**

Comment: This requirement is primarily for TES products produced at the TES SIPS at JPL, being returned to LaRC for archiving. The route from JPL to LaRC is via NISN PIP. This month, performance from JPL-TES to LaRC-PTH was stable. Note that ARC to JPL flows were diverted off NISN in December 2014. The thruput remained much higher than the requirement; the rating remains **Excellent**.



Thruput from JPL-NISN-PTH to LaRC-PTH increased at the beginning of June 2014, when JPL-NISN-PTH was connected to a Gig-E port on a NISN switch – previously it was limited to 100 mbps due to its connection to a Fast-E port. The thruput was stable this month, as JPL-NISN-PTH is not subject to NISN to JPL campus congestion.

Thruput from both JPL sources to LaRC-PTH increased again in September 2014, when LaRC-PTH was upgraded.

An additional test was added to LaRC-PTH from a new JPL node, JPL-PerfSonar (JPL-PS). Thruput was lower than the other nodes – will be investigated.

The JPL to LaRC integrated graph doesn't really show the 0.94 mbps user flow from JPL to LaRC this month. This is the entire NISN flow from JPL to LaRC – it may not all be EOS related. But it is consistent with the EOS requirement.

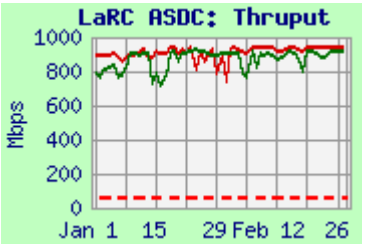
4.2) GSFC → LaRC:

Rating: Continued **Excellent**

Web Pages : http://ensight.eos.nasa.gov/Organizations/production/LARC.shtml
http://ensight.eos.nasa.gov/Organizations/production/LARC_ANGe.shtml
http://ensight.eos.nasa.gov/Organizations/production/LARC_PTH.shtml

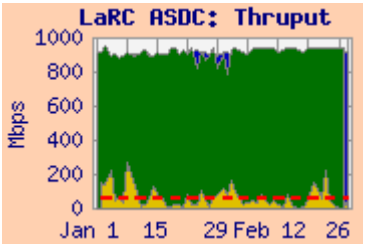
Test Results:

Source → Dest	Medians of daily tests (mbps)				
	Best	Median	Worst	User Flow	Integrated
GES DISC → LaRC ASDC	936.3	935.5	740.4	36.8	935.6
GSFC-EDOS → LaRC ASDC	925.4	904.5	679.3		
ESDIS-PTH → LaRC-ANGe	879.6	809.4	686.2		
GSFC-NISN → LaRC-ANGe	845.8	723.0	586.0		
GES DISC → LaRC-PTH	924.1	786.4	266.8		
GSFC-NISN → LaRC-PTH	932.9	785.6	688.2		
NPP-SD3E → LaRC-PTH	889.9	775.3	236.7		



Requirements:

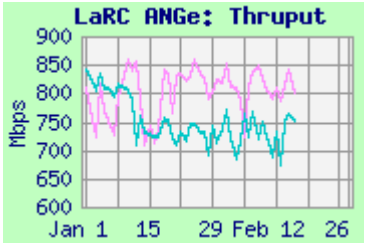
Source → Dest	Date	Mbps	Prev	Rating
GSFC → LARC (Combined)	CY '12 –	60.7	52.2	Excellent



Comments:

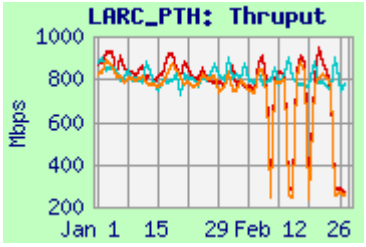
GSFC → LaRC ASDC: Thruput from **GES DISC** to LaRC ASDC DAAC remained well above 3 x the increased combined requirement, close to the circuit limitation, so the rating remains **Excellent**. Thruput to ASDC from **GSFC-EDOS** was slightly lower and noisier.

As seen on the integrated graph, the 37 mbps average user flow this month was close to both typical and the requirement (without contingency).



GSFC → ANGe (LaTIS): Testing to ANGe ("Bob") from both ESDIS-PTH and GSFC-NISN was stable, close to the circuit limitation, until "Bob" went down in mid February. (Note the expanded scale on the graph).

GSFC → LaRC-PTH: Testing to LaRC-PTH from **GES DISC**, **NPP-SD3E**, and **GSFC-NISN** improved from all sources in late September 2014, when the LaRC-PTH node was upgraded. (Note the expanded scale on the graph). Performance from EBnet sources became quite noisy, but was stable from GSFC-NISN.



5) Boulder CO sites:

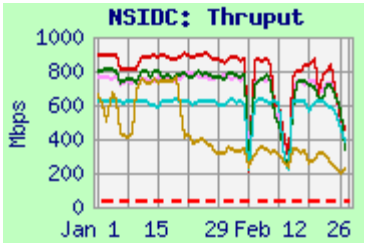
5.1) NSIDC:

Ratings: GSFC → NSIDC: Continued **Excellent**
GHRC → NSIDC: ↑ **Good** → **Excellent**
JPL → NSIDC: **Excellent**

Web Pages: http://ensight.eos.nasa.gov/Organizations/production/NSIDC.shtml
http://ensight.eos.nasa.gov/Organizations/production/NSIDC_SIDADS.shtml
http://ensight.eos.nasa.gov/Organizations/production/NSIDC_PTH.shtml

Test Results: NSIDC S4PA

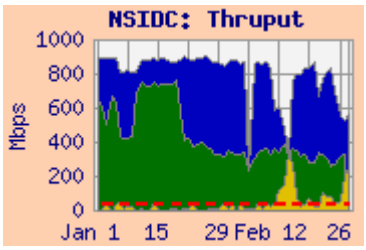
Source → Dest	Medians of daily tests (mbps)				
	Best	Median	Worst	User Flow	Integrated
MODAPS-PDR → NSIDC DAAC	400.2	313.2	167.3	85.1	327,7
GES-DISC → NSIDC DAAC	892.5	802.5	422.4		
GSFC-EDOS → NSIDC DAAC	823.0	719.6	352.3		
ESDIS-PTH → NSIDC DAAC	792.0	728.4	349.6		
GSFC-ISIPS → NSIDC (iperf)	631.7	612.8	295.7		
JPL SMAP → NSIDC DAAC	798.0	709.5	346.5	0.93	
JPL PS → NSIDC DAAC	831.0	590.8	258.0		
GHRC → NSIDC DAAC (nuttcp)	20.9	20.5	12.0	0.023	
GHRC → NSIDC DAAC (ftp pull)	37.2	34.1	7.4		



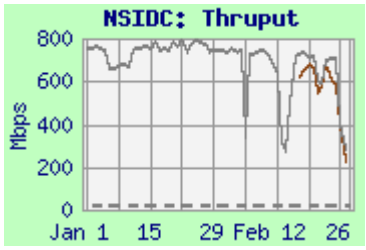
Requirements:

Source → Dest	Date	Mbps	Prev	Rating
GSFC → NSIDC	8/14 –	38.5	16.8	**Excellent**
JPL → NSIDC	FY '15 –	17.1	0.16	**Excellent**
GHRC → NSIDC	FY '15 –	5.14	2.08	↑ **Excellent**

Comments: The requirements were updated in June 2014 to use the FY '14 database, and include MODIS reprocessing, which has now begun. AMSR-E flows from EDOS and JPL have been removed.



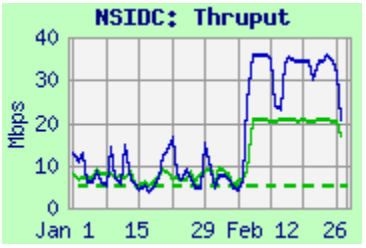
5.1.1 GSFC → NSIDC S4PA: The rating is based on testing from the **MODAPS-PDR** server to the NSIDC DAAC, since that is the primary flow. The median thruput from **MODAPS-PDR** dropped, probably due to large reprocessing flow to EROS, but remained well above 3 x the increased requirement, so the rating remains **Excellent**. The 85 mbps average user flow is apparently due to the MODIS reprocessing flow, and is now more than 2 x the requirement. Performance from **GES-DISC**, **GSFC-EDOS**, and **GSFC-ISIPS** was less noisy and mostly stable.



5.1.2 JPL SMAP → NSIDC S4PA: There is no longer a JPL to NSIDC requirement for AMSR-E. A new 17.1 mbps flow requirement for SMAP began in October, before the SMAP launch on January 31.

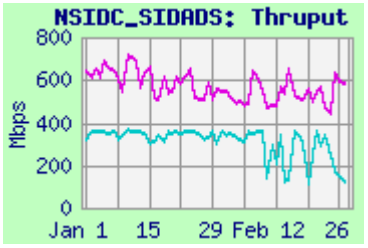
Testing to NSIDC from **JPL-SMAP** was well in excess of the SMAP requirement, rating **Excellent**. Thruput stabilized in December, like many other JPL flows. A new test was added in February from a new test node at JPL – **JPL-PerfSonar (JPL-PS).** Performance was similar to **JPL-SMAP**. The user flow was only 0.93 mbps this month -- more than the 0.0007 mbps last month, but well below the requirement – SMAP science operations have not started yet.

5) Boulder CO sites (Continued):



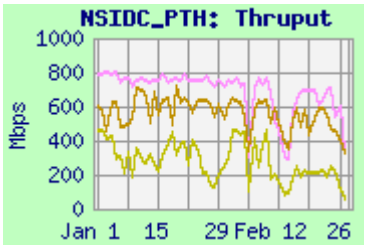
5.1.3 **GHRC, GHRC-ftp → NSIDC S4PA:** GHRC (NSSTC, UAH, Huntsville, AL) sends reprocessed AMSR-E data to NSIDC via Internet2. This requirement increased to 5.14 mbps in December '14 (was 2.08 mbps previously) – when the next reprocessing campaign began.

The median integrated thruput stabilized and improved in early February – it is now above the increased requirement by more than 3 x, so the rating improves to **Excellent**



Test Results: NSIDC-SIDADS, NSIDC-PTH

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
GSFC-ENPL → NSIDC-SIDADS	720.0	531.0	338.5
GSFC-NISN → NSIDC-SIDADS	363.8	341.5	138.1
ESDIS-PTH → NSIDC-PTH	789.0	680.8	312.1
MODAPS-PDR → NSIDC-PTH	681.4	533.5	311.0
JPL-NISN-PTH → NSIDC-PTH	456.6	214.6	57.6



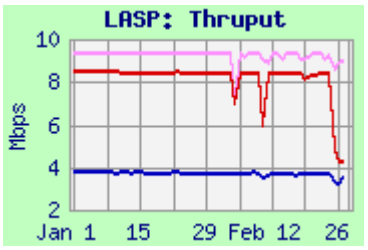
5.1.4 GSFC → NSIDC-SIDADS: Performance from GSFC-ENPL was retuned in June '14 (using 30 streams, to compensate for the small window size on SIDADS) with increased thruput. Testing from GSFC-NISN was similarly retuned in September.

5.1.5 NSIDC-PTH: Thruput from all sources to NSIDC-PTH improved in mid December 2014, when the NSIDC-PTH machine was upgraded.

5.2) LASP:

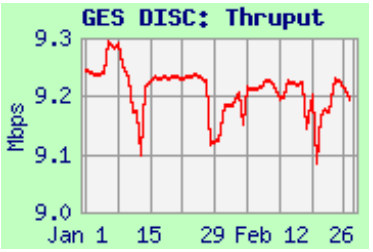
Rating: LASP → GSFC: Continued **Excellent**

Web Page: http://ensight.eos.nasa.gov/Organizations/production/LASP.shtml



Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
ESDIS-PTH → LASP blue (scp)	3.75	3.68	3.36
ESDIS-PTH → LASP blue (iperf)	9.36	9.28	7.50
GES DISC → LASP blue (iperf)	8.45	8.36	5.15
LASP → GES DISC	9.23	9.21	7.24



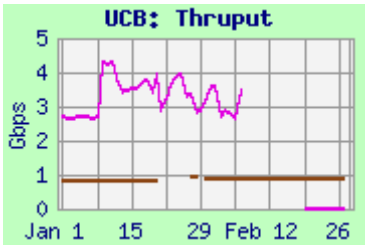
Requirement:

Source → Dest	Date	Mbps	Rating
LASP → GES DISC	CY '10 -	0.016	Excellent

Comments: In January '11, LASP's connection to NISN PIP was rerouted to a 10 mbps connection to the NISN POP in Denver; previously it was 100 mbps from CU-ITS via NSIDC.

Performance from all sources was very stable and consistent with the circuit limitation, as was return testing from LASP to GES DISC, rating **Excellent**.

5.3) UCB: http://ensight.eos.nasa.gov/Organizations/daac/UCB.shtml



Test Results:

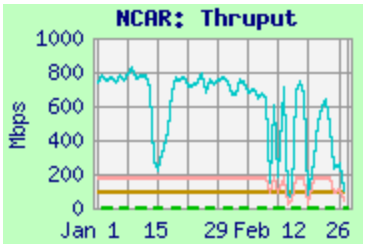
Source	Medians of daily tests (mbps)		
	Best	Median	Worst
GSFC-ENPL	n/a	n/a	n/a
GSFC-ESTO	910.0	909.8	828.5

Comments: Thruput from both GSFC-ENPL and GSFC-ESTO improved in early October '14, by switching back to the 10 gig connected test node at UCB (it had began failing consistently in mid-May 2013, so testing had been switched to a 1 gig test node in mid-June '13). Testing from GSFC-ENPL began failing again in February, and was switched back to the 1 gig server in March. The route is via Internet2 to FRGP, similar to NCAR.

5.4) NCAR:

Ratings: LaRC → NCAR: Continued **Excellent**
GSFC → NCAR: Continued **Excellent**

Web Pages http://ensight.eos.nasa.gov/Missions/terra/NCAR.shtml

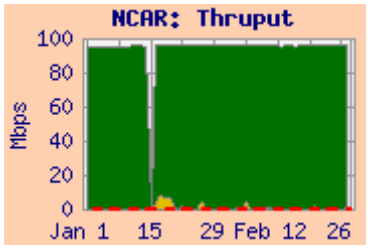


Test Results:

Source	Medians of daily tests (mbps)		
	Best	Median	Worst
LaRC PTH	181.7	181.1	41.1
GSFC-ENPL-10G	4819.9	2391.9	1036.8
GSFC-ENPL-FE	96.3	95.9	95.5
GSFC-NISN-PTH	852.6	616.3	64.3

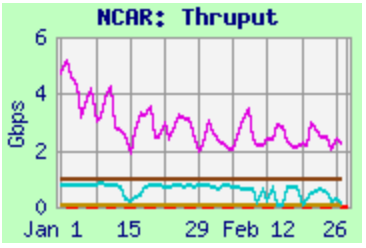
Requirement:

Source	Date	Mbps	Prev	Rating
LaRC	CY '12 -	0.044	0.1	Excellent
GSFC	CY '12 -	0.111	5.0	Excellent



Comments: NCAR has a SIPS for MOPITT (Terra, from LaRC), and has MOPITT and HIRDLS (Aura, from GSFC) QA requirements. Testing is to NCAR's 10 gigabit capable PerfSonar node since March '12.

From LaRC: Thruput from LaRC-PTH was very steady, and improved a bit with the LaRC-PTH upgrade in September '14. It remains limited to 200 mbps by agreement with CSO / NISN. The median remained well above 3 x the tiny requirement, so the rating remains **Excellent**.



From GSFC: From GSFC-NISN-PTH, the route is via NISN to the MAX (similar route as from LaRC-PTH). Thruput was noisy this month. The median was well above 3 x the tiny requirement, so the rating remains **Excellent**. The user flow from GSFC-EBnet averaged about 0.6 mbps this month, below the 1.1 mbps last month. This is well above the revised requirement, but below the previous requirement.

From GSFC-ENPL-10G, with a 10 Gig-E interface, and a 10 gig connection to MAX, performance to NCAR's 10 Gig PerfSonar node is also noisy, but averages over 2 gbps, and gets almost 5 gbps on peaks.

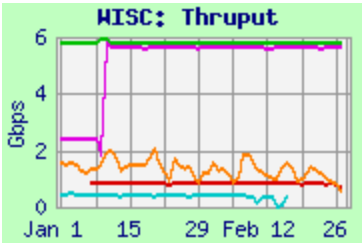
6) Wisconsin:

Rating: Continued **Excellent**

Web Pages http://ensight.eos.nasa.gov/Missions/NPP/WISC.shtml

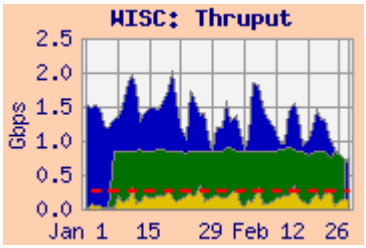
Test Results:

Source Node	Medians of daily tests (mbps)				
	Best	Median	Worst	User Flow	Integrated
NPP-SD3E	2070.3	1195.3	5.8	116.0	1215.2
GES DISC	850.9	842.7	574.5		
GSFC ENPL	5683.0	5620.6	5537.7		
GSFC-ENPL-v6	5847.3	5815.3	5767.8		
LaRC ANGe	420.8	388.1	158.2		



Requirements:

Source Node	Date	mbps	Prev	Rating
NPP-SD3E	FY'14 -	242.3	237.2	Excellent
GSFC MODAPS	FY'14 -	21.9	16.5	Excellent
GSFC Combined	FY'14 -	264.2	253.7	Excellent
LaRC Combined	CY'12 -	n/a	7.9	n/a



Comments: The University of Wisconsin is included in this Production report due to its function as Atmosphere PEATE for NPP. Wisconsin continues to act as an SCF on the MODIS, CERES and AIRS teams.

GSFC: Testing from **NPP-SD3E** was switched to Wisconsin's 10 gig server in May 2013, with initial thruput usually close to 2 gbps! The median integrated thruput from **NPP-SD3E** remained above the NPP requirement by more than 3 x, so the NPP rating remains **Excellent**. It was also above the GSFC combined requirement by more than 3 x, so the combined rating also remains **Excellent**.

User flow was a bit below but consistent with the requirement, similar to last month.

The route from EBnet at GSFC is via MAX to Internet2, peering with MREN in Chicago.

Testing from **GSFC-ENPL** was switched to the 10 gig server at Wisconsin (SSEC) in March 2013. Due to problems, testing was switched to a backup server in September '14, with reduced results, back to the 10 gig server in early October, to the backup server again in December, and back to the primary in January.

Testing from **GSFC-ENPL** using IPv6 was added in late November '14. Its performance was very stable and slightly better than IPv4 performance.

Testing from **GES DISC** began failing in November, and was restored in January. Thruput was stable and close to the circuit limit.

LaRC: There is no longer a CERES requirement from LaRC to Wisconsin. In April 2013, testing from **LaRC ANGe** was switched to the new SSEC 10 gig server; performance improved at that time. Thruput from **LaRC ANGe** was stable, and remains well above the previous 7.9 mbps requirement; it would be rated **Excellent**. The route from LaRC is via NISN, peering with MREN in Chicago.

7) KNMI:

Rating: Continued **Excellent**

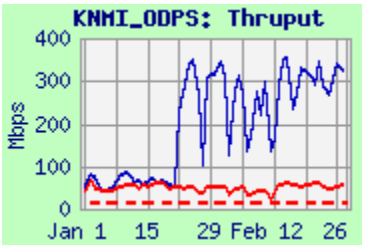
Web Page http://ensight.eos.nasa.gov/Missions/aura/KNMI_ODPS.shtml

Test Results:

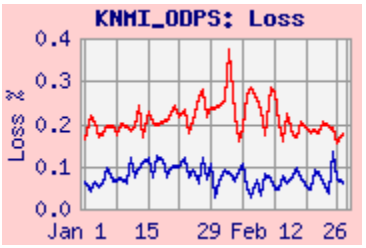
Source → Dest	Medians of daily tests (mbps)				
	Best	Median	Worst	User Flow	Integrated
OMISIPS → KNMI-ODPS	76.7	50.0	31.4	1.75	51.0
GSFC-ENPL → KNMI-ODPS	353.5	289.8	58.4		

Requirements:

Source Node	Date	mbps	Prev	Rating
OMISIPS	CY'12 -	13.4	0.03	Excellent

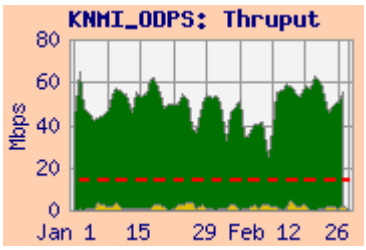


Comments: KNMI (DeBilt, Netherlands) is a SIPS and QA site for OMI (Aura). The route from GSFC is via MAX to Internet2, peering in DC with Géant's 2+ x 10 gbps circuit to Frankfurt, then via Surfnet through Amsterdam.



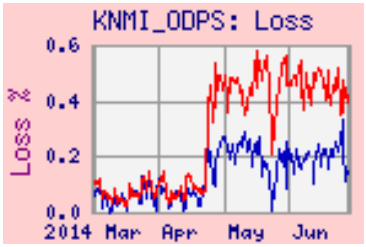
The requirement was increased with the use of the FY'14 database to 13.4 mbps, a much more realistic value than the previous 0.03 mbps.

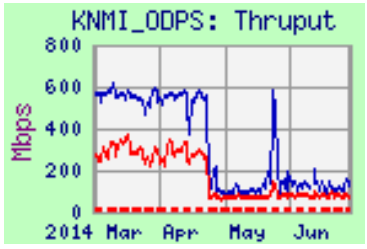
The rating is based on the results from **OMISIPS** on EBnet at GSFC to the ODPS primary server at KNMI. Thruput from both sources was stable until near the end of April 2014, when it dropped significantly, due to increased packet loss. **Thruput from GSFC-ENPL improved dramatically in mid-January** – with no apparent change in packet loss, or change in performance from **OMISIPS.**

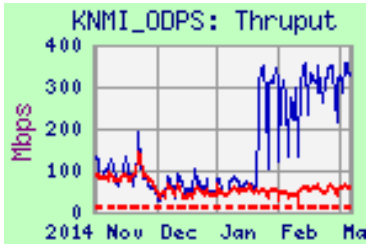


The median thruput from **OMISIPS** remains above 3 x the increased requirement, so the rating remains **Excellent**.

The user flow, however, averaged only 1.75 mbps this month, similar to recent months, but only 13% of the revised requirement.







8) JSpace - ERSD:

Ratings: **GSFC → ERSD:** Continued **Excellent**
ERSD → EROS: Continued **Excellent**
ERSD → JPL-ASTER-IST: N/A

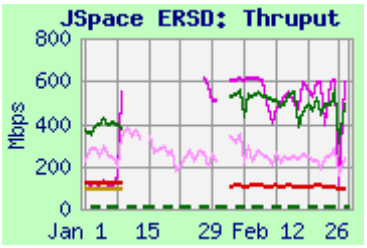
Web Page: http://ensight.eos.nasa.gov/Organizations/production/ERSDAC.shtml

US ←→ JSpace - ERSD Test Results

Source → Dest	Medians of daily tests (mbps)				
	Best	Median	Worst	User Flow	Integrated
GSFC-EDOS → JSpace-ERSD	630.0	506.1	139.9	4.56	506.1
GES DISC → JSpace-ERSD	118.2	106.9	52.4		
GSFC ESDIS-PTH → JSpace-ERSD	408.8	242.9	52.6		
GSFC ENPL (GE) → JSpace-ERSD	630.0	593.0	31.4		
JSpace-ERSD → EROS-PTH	330.4	325.4	298.8	5.23	325.4
JSpace-ERSD → JPL-PerfSonar	96.3	94.1	43.9		

Requirements:

Source → Dest	CY	Mbps	Prev	Rating
GSFC → JSpace-ERSD	'14 -	16.4	6.75	Excellent
JSpace-ERSD → JPL-ASTER IST	'12 -	0.31	0.31	Excellent
JSpace-ERSD → EROS	'12 -	8.33	8.3	Excellent

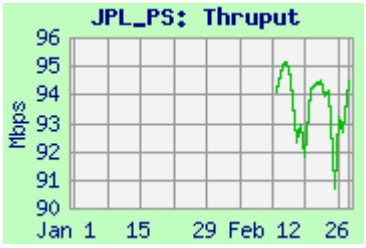


Comments: **8.1 GSFC → JSpace-ERSD:** The old server at JSpace-ERSD was retired in early January. The testing to the new server was initially only from ESDIS-PTH. Testing to the new server was added from GSFC ENPL in late January, and from GSFC-EDOS and GES DISC in February.

Performance to the new server at ERSD from GSFC-EDOS was well above the requirement, rating **Excellent**.

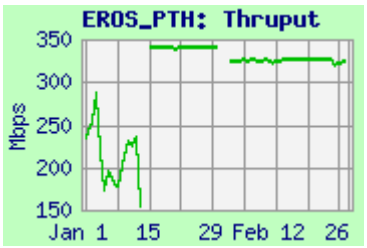
The 4.56 mbps user flow from GSFC to JSpace-ERSD was close to normal this month, but below the increased requirement, without contingency.

8.2 JSpace-ERSD → JPL-ASTER-IST: The JPL-ASTER-IST test node was retired in October 2012. JPL no longer uses a distinct IST; instead, JPL personnel log in directly to the IST at JSpace-ERSD. As a substitute, testing was initiated from ERSD to a different node at JPL ("JPL-PerfSonar"). Results to JPL-PS were very stable this month; the rating would be **Excellent**.



8.3 JSpace-ERSD → EROS: Thruput was very stable and remains well above the requirement, so the rating remains **Excellent**. The 5.2 mbps user flow this month was very close to the requirement, without contingency.

Testing from the new server at **JSpace** was initiated to EROS-PTH in October. Performance was retuned in January, and stabilized higher than previously -- it is rated **Excellent**.



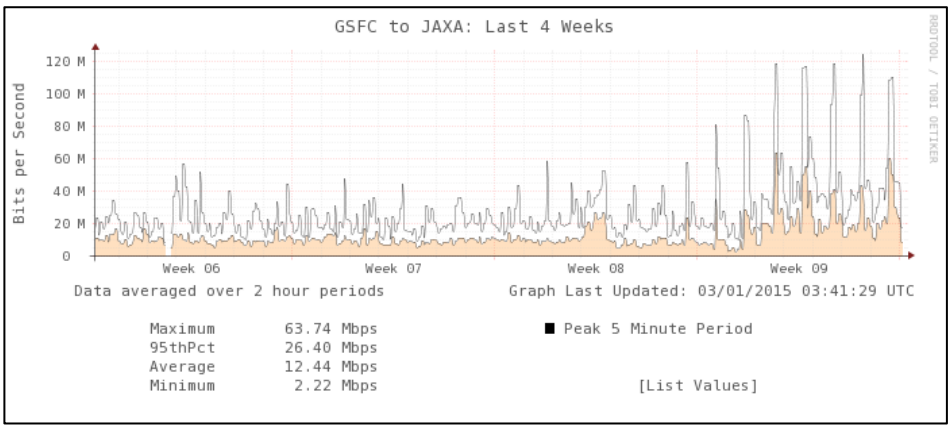
10) GSFC ←→ JAXA

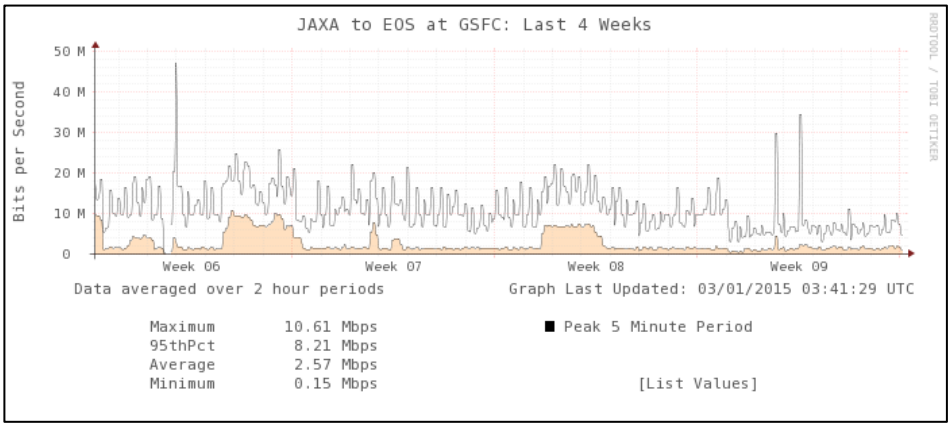
Ratings: GSFC ←→ JAXA: N/A

The JAXA test hosts at EOC Hatoyama were retired on March 31, 2009. No additional testing is planned for AMSR or TRMM. All testing to JAXA-TKSC for ALOS was terminated at the end of June '09. Tests have been conducted with JAXA to evaluate different file transfer protocols for GPM -- but those results are not suitable for this report.

However, the user flow between GSFC-EBnet and JAXA continues to be measured. As shown below, the user flow this month averaged 12.4 mbps from GSFC-EBnet to JAXA, and 2.6 mbps from JAXA to GSFC-EBnet.

These values are more or less consistent with the new database requirements of 15.4 mbps from GSFC to JAXA, and 3.3 mbps from JAXA back to GSFC (The AMSR-E requirement from JAXA to JPL has been removed, due to AMSR-E failure). However, since no iperf tests are run, the true capability of the network cannot be determined, and therefore no rating is assigned.





For comparison, testing is performed from GSFC to a test node at the Tokyo Exchange point, which is on the route from GSFC to JAXA. Performance to the Tokyo-XP 10 gig server is well in excess of the JAXA requirements.